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The Rockefeller University

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MacKinnon elected to U.S. National Academy of Sciences

Professor Roderick MacKinnon, head of the Laboratory of Molecular Neurobiology and Biophysics and an investigator at the Howard Hughes Medical Institute, was elected to membership in the U.S. National Academy of Sciences (NAS) at the Academy's 137th meeting on Tues., May 2. MacKinnon studies the functional and structural architecture of ion channel proteins, molecules that govern the electrical potential of membranes throughout nature, thereby generating nerve impulses and controlling muscle contraction, cardiac rhythm and hormone secretion.

The transfer of potassium ions across cell membranes has long been understood as an essential activity for many life-sustaining functions. The proper balance of these ions is essential for fundamental operations, such as the transmission of nerve impulses throughout the body and brain. But until MacKinnon captured an image of the channel, it was not well understood how the process actually worked.

"We are pleased that the Academy has chosen to recognize Rod for his outstanding contributions to our understanding of how the structure of ion channels relates to their function," says President Arnold J. Levine, who was elected to the NAS in 1991.

In 1998, MacKinnon's laboratory solved the structure of the potassium ion channel, and the three-dimensional image of the channel was published on

the cover of *Science* magazine, which labeled the breakthrough one of the 10 biggest science stories of the year. MacKinnon is modest about the impact of his research, but other scientists strongly praised his work. "A remarkable accomplishment," proclaimed Clay Armstrong, a professor in the Department of Physiology at the University of Pennsylvania School of Medicine who reviewed MacKinnon's paper in the same issue of *Science*. "It is a dream come true for biophysicists."

MacKinnon calls the design of the potassium ion channel protein "elegant in its simplicity." The balance of electrical forces and chemical bonds inside the protein not only sends potassium ions through the channel rapidly but also keeps out most other ions. MacKinnon's research may play an important role in the development of drugs to deal with diseases ranging from diabetes to heart problems.

The scientific community has recognized MacKinnon's contributions and bestowed upon him some of its highest honors, including the 1999 Albert Lasker Basic Medical Research Award, the nation's most distinguished honor for outstanding contributions to



On Thurs., April 6, Roderick MacKinnon (center) received the Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Science by Brandeis University, where he studied as an undergraduate and later did postdoctoral work. With him are Arthur Pardee (left), who was a recipient in 1975 and Alexander Rich, who received the award in 1983. Photo courtesy of the Rosenstiel Center at Brandeis University.

basic and clinical medical research; he shared the prize with Armstrong and Bertil Hille, a Rockefeller University alumnus who is a professor of physiology and biophysics at the University of Washington. MacKinnon is a member of Alpha Omega Alpha Medical Honors Society, a PEW scholar in the Biomedical Sciences and the recipient of the McKnight Scholars Award, the Biophysical Society Young Investigator Award, the McKnight Investigator Award, the W. Alden Spencer Award, the AAAS Newcomb Cleveland Prize and, most recently, the Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Science.

Friday lecture: Leonard Guarente to discuss aging

At today's Friday lecture (May 5) Leonard Guarente, professor at MIT, will discuss "The Molecular Analysis of Aging." Guarente studies the molecular mechanism of aging in yeast and mammals.

Guarente's lab has used genetic tools to identify genes that control the life-span of yeast mother cells. Although yeast cultures are immortal, individual yeast mother cells divide only a limited number of times and assume a characteristic morphology as they age. The work has revealed a role for the SIR gene-silencing complex in the control of mother life span. Mutations that knock out SIR genes accelerate aging, and a dominant mutation called SIR4-42 slows aging. Molecular analysis revealed that old mother cells accumulate large amounts of circular rDNA in their nuclei. SIR2 appears to control life span by repressing homologous recombination in the rDNA, lowering the load of rDNA circles in old mother cells.

Recently, the Guarente lab has demonstrated that SIR2 proteins from yeast and mammals have NAD⁺ dependent histone deacetylase activity in vitro. This activity could explain the role of SIR2 in gene silencing and suggests a link between heterochromatin and aging in yeast and man.



Leonard Guarente, a biology professor at MIT, will present today's Friday lecture. Photo by Donna Coveney, courtesy of MIT.

In addition, the Guarente lab studies human premature aging. Werner's syndrome is a rare premature aging disease caused by mutations in the WRN gene, which encodes a RecQ type helicase. The WRN helicase is related to the Bloom syndrome helicase, BLM and to the yeast RecQ helicase Sgs1p, which

see **Friday lecture**, page 2

Virologist Charles M. Rice joins faculty

Charles M. Rice has accepted a faculty appointment at the Rockefeller University. Beginning in September, Rice will hold the Maurice R. and Corinne P. Greenberg Chair in Virology and serve as head of the Laboratory for Virology and Infectious Disease. He will also serve as the scientific and executive director of the Center for the Study of Hepatitis C, a new research center founded jointly by Rockefeller University, NewYork-Presbyterian Hospital and Weill Medical College of Cornell University (see story page 3). Rice is currently at Washington University in St. Louis, where he gained a reputation as one of the world's most accomplished virologists and a prominent figure in research on the hepatitis C virus (HCV).

"The appointment of Dr. Rice as professor re-establishes Rockefeller's preeminence in the field of virology," says RU President Arnold J. Levine. "While his leadership at the hepatitis center will benefit the entire New York area and the field of hepatitis research, his presence on the Rockefeller campus and interaction with other Rockefeller scientists will lend itself to innovative approaches to fighting many viruses."

"There are many things that led me to make this move," Rice says. "I was attracted not only by the reputation of Rockefeller University with its terrific scientists, but also the opportunity to start this special center for hepatitis C research. The basic science will be anchored at Rockefeller, but we will be able to catalyze extensive interactions among physicians and patients at NewYork-Presbyterian Hospital and with researchers at Weill Cornell Medical College."

Since 1995, Rice has served as a professor in the Department of Molecular Microbiology at Washington University's School of Medicine. He first joined the department as an assistant professor in 1986. Rice attended the University of California at Davis as an undergraduate, receiving a B.S. degree in zoology in 1974. He went on to do graduate work at the California Institute of Technology, earning a Ph.D. in biochemistry in 1981, and then was a postdoctoral research fellow at the institute from 1981 to 1985. In 1997, Rice led a research team that demonstrated for the first time that HCV alone is sufficient to cause the disease, a revelation that should help scientists

determine the best strategy for developing an effective vaccine.

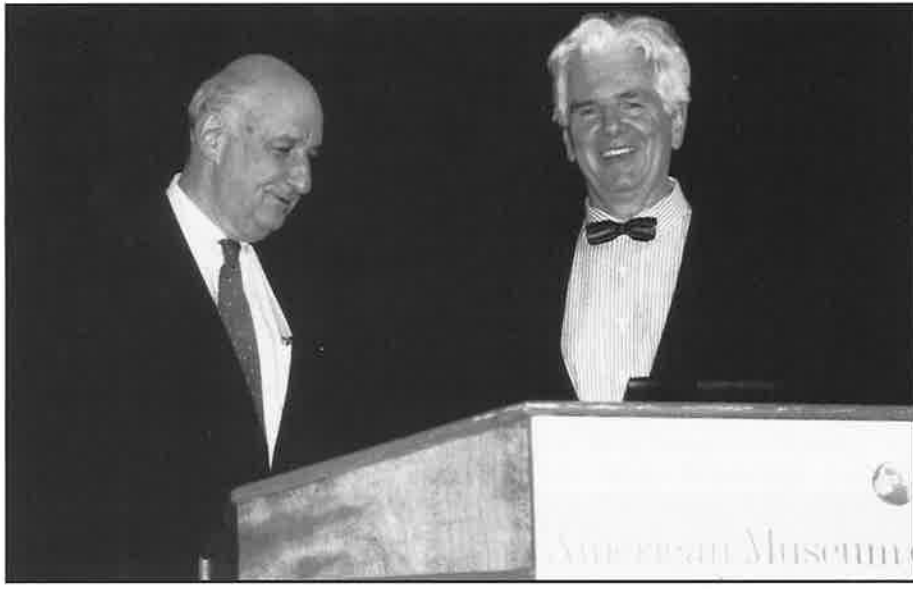
"Under the guidance of Dr. Rice, we will start finding answers to the critical questions about HCV," Levine adds. "We will see progress in developing therapies for hepatitis C only through a basic molecular understanding of the virus' growth mechanisms and the interplay of its life cycle with physiological and immune factors of the host. It is also clear that there is an urgent need for cell culture and other models in which to study these problems. Dr. Rice will be instrumental in unraveling the mechanisms of HCV and in developing the new models by which to study it."

Rice's study of the virus will greatly benefit, in turn, from collaboration with Rockefeller colleagues working in areas outside virology. For example, Rockefeller scientists adept in X-ray crystallography and other structural biology techniques will help determine the structure of the virus' proteins, which will aid in designing a drug that could hinder their normal function. Other researchers specializing in replication will shed light

see **Charles Rice**, page 2

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|---|------------------|
| 2 | Urban genius |
| 3 | Joint HCV effort |
| 4 | Calendar |

Blobel speaks at the Museum of Natural History



On Tues., April 18, RU Professor Günter Blobel (right) gave a lecture at the American Museum of Natural History entitled "The Empowered Cell." His talk was part of the "Revolutionizing Medicine in the 21st Century" lecture series at the museum, co-sponsored by NewYork-Presbyterian Hospital, Columbia University College of Physicians and Surgeons, Weill Medical College of Cornell University and NYC & Co. Samuel Silverstein (left), chairman of physiology and cellular biophysics at Columbia University College of Physicians and Surgeons, introduced Blobel at the lecture. Blobel described the cell as "a busy metropolis," using photos of Dresden, Germany, to illustrate his point. Photo by Marie Wallace.

Charles Rice, from page 1

on how the virus makes copies of itself. And, given the similarities between HCV and the human immunodeficiency virus (HIV), work done by Rockefeller Professor David D. Ho, the noted AIDS researcher and

scientific director of the Aaron Diamond AIDS Research Center, should increase understanding of hepatitis C and suggest effective ways to fight or prevent it. Ho helped to develop the so-called AIDS cocktail of therapeutic drugs through studies done at The Rockefeller University Hospital,

Friday lecture, from page 1

was found to affect the life span of yeast mother cells. The lab has demonstrated that WRN is located in the mammalian nucleolus, and the phenotype of mice lacking WRN gene family members is being examined.

Guarente received a B.S. degree in biology from MIT in 1974. He then pursued studies in molecular genetics at Harvard University, receiving his doctorate in 1974. From 1978 to 1981 he was the Jane Coffin Childs Postdoctoral Fellow at Harvard. In 1981 he became

an assistant professor of biology at MIT, rising to associate professor in 1985 and full professor in 1991. Among the many honors and awards Guarente has received are the Presidential Young Investigator Award from the National Science Foundation from July 1994 through June 1989, election to the American Academy of Microbiology in 1998 and, most recently, the Novartis Professor of Biology in 2000.

The lecture begins at 3:45 p.m. in Caspary Auditorium and is preceded by a tea in Abby Aldrich Rockefeller Lounge. All are welcome.

Potpourri

National Nurses Week

Mon., May 6, to Fri., May 12, is National Nurses Week. On Fri., May 12, the Hospital will host a celebration to honor its nursing staff for their contributions to the development of new scientific knowledge through their work each day. Due in part to the efforts of the nursing staff, the Hospital was awarded the highest score in its history last year by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO). The RU nursing community, which comprises nurses who work in the Hospital, in laboratories and in the Employee Health Office, will attend a luncheon to be followed by an address by Patricia O'Brien, senior advisor for regulatory and professional affairs for the Greater New York Hospital Association, on "Communication Strategies for Nurses: From the Bedside to Beyond." In the evening there will be a special dinner for evening and night nursing staff. The Nurses Week celebration coincides with the 180th birthday of Florence Nightingale, the founder of modern nursing.

Abby Aldrich Dining Room

The Abby Dining Room will be closed for lunch on Thurs., May 11, to accommodate a private function. The dining room will reopen on Fri., May 12.

NYAS conference at Caspary

The New York Academy of Sciences is sponsoring the conference "Unity of Knowledge: The Convergence of Natural and Human Science" from Fri., June 23, to Sun., June 25, in Caspary Auditorium. Scholars from the natural sciences, social sciences and humanities will explore the significance of extraordinary discoveries in genetics and neuroscience on our understanding of mind, behavior, culture and values. E. O. Wilson is the keynote speaker and Antonio Damasio, Anne Harrington, Jerome Kagan and RU Professor Bruce McEwen have organized panels. Stuart Kauffman, Leon Lederman and Rockefeller President Emeritus Joshua Lederberg are also among the participants. For program and registration information visit <http://www.nyas.org/scitech/contents/confUNITY.html> or contact conference@nyas.org or 838-0230 x324.

Landscape architect Daniel Urban Kiley to lecture at Spring Neighborhood Day, Sat., May 13

This year's Spring Neighborhood Day will feature a lecture by landscape architects Daniel Urban Kiley and Jane Perry Amidon, who will discuss their book, *Dan Kiley: The Complete Works of America's Landscape Architect*. Kiley designed the Rockefeller landscape following the additions of Abby Aldrich Rockefeller Hall, Caspary Auditorium, the President's House, Graduate Student Residence and Detlev W. Bronk Laboratory. The goal of the design, Kiley explains, was to "provide a sensory experience effective enough to envelope visitors" and to tie together the old and new buildings. Apparently Kiley achieved this goal, creating a space that *The New York Times* recently described as a "graceful campus... a musical composition of light, shadow and shades of green."

Kiley's career, spanning more than 50 years, has included some of this country's most important commissions with its most distinguished architects. He has designed landscapes for Lincoln Center, The New York Botanical Gardens and the Getty Center in Los Angeles. His work has been shown at the Museum of Modern Art in New York, The Library of Congress in Washington, D.C., and in traveling national exhibitions. Among the many honors and awards he has received are a National Medal of Honor in the Arts from the National Endowment for the Arts in 1997 presented by President and Mrs. Clinton, the Outstanding Lifetime Achievement Award in 1992 from the Alumni/ae Council of the Harvard Graduate School of Design and an appointment as academician by the National Academy of Design in 1990.

Amidon earned her master's degree in landscape architecture from Harvard University's Graduate School of Design. While at Harvard she initiated an ongoing research project consisting of a series of 12 interviews with Kiley, which served as the foundation for the book Amidon co-authored with Kiley in 1999. From 1993 to 1998 she worked at Kiley's firm, first as an intern and finally as associate designer. Amidon currently is a visiting professor at Ohio State University and is working on a study of contemporary, non-traditional place-making around the world, which will be published this year by Thames and Hudson. Amidon also is a principal in Land Art Studio, a site design/venue design and installation/communications firm.



Daniel Urban Kiley, landscape architect for much of the RU grounds, will lecture at this year's Spring Neighborhood Day, Sat., May 13. Photo courtesy of Daniel Urban Kiley.

The lecture begins at 1 p.m., Sat., May 13, in Caspary Auditorium and will be followed by guided tours of the campus (weather permitting). All are welcome, and admission is free.

Guarneri String Quartet closes Peggy Rockefeller Concerts season

The Guarneri String Quartet will perform in Caspary Auditorium on Wed., May 10, at 8 p.m. in the final Peggy Rockefeller Concert of the season. This will be the last performance at Rockefeller of the quartet with its original four members, as cellist David Soyer has decided to limit his performance schedule after this season. His familiar lyricism will be very much missed by the Rockefeller audience.

The Guarneri, founded in 1964, is the longest continuing artistic collaboration of any quartet in the world. Violinists Arnold Steinhardt and John Dalley, violist Michael Tree and Soyer, who will all perform at the Wednesday evening concert, are the original members of the quartet. They have circled the globe countless times together, performing in the world's most prestigious halls in North and South America, Europe and the Far East. They have a very special relationship with The Rockefeller University, having performed here every year since their founding. They will return again in 2001, with cellist Peter Wiley taking Soyer's accustomed position in the ensemble.

The May 10 program will include Brahms' *String Quartet in C Minor, Op. 51, No. 1*, Bartók's *String Quartet No. 2, Op. 17* and Ravel's *String Quartet in F Major*.



The Guarneri String Quartet will perform at the last Peggy Rockefeller Concert of the season. Photo courtesy of the artists.

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University and neighbors form joint HCV research center

by Jim Stallard

Some four million people in the United States are infected with the hepatitis C virus (HCV), and about 30,000 new acute infections occur every year. HCV is responsible for 8,000 to 10,000 deaths per year in the United States. Liver failure due to hepatitis C is the leading cause of liver transplants in the United States, and about 25 percent of liver cancer cases in the country are associated with HCV. Although about 85 percent of those who are infected develop chronic hepatitis, the virus usually remains undetected for years, or even decades, until it causes advanced liver disease in some.

Researchers know that hepatitis C has genetic variations that result in different structures of the viral proteins, but they do not understand yet how these variations determine the virus' effect on the liver cells of the person carrying it. Scientists need a clearer picture of how HCV replicates and interacts with the host's immune system in order to under-

stand how it causes liver injury and progressive liver disease or other complications. To further investigate HCV the Rockefeller University has partnered with its neighbors, NewYork-Presbyterian Hospital and Weill Medical College of Cornell University, to jointly establish the Center for the Study of Hepatitis C, the first major center in the northeast region devoted specifically to the disease. Renowned virologist Charles M. Rice, who recently made the first infectious clone of the virus, will join The Rockefeller University faculty and serve as both scientific and executive director of the multi-institutional center.

Interdisciplinary approach

The center's strength will lie in its interdisciplinary approach to investigating HCV, combining basic research in molecular and cellular biology with clinical studies. The collaborative effort will be driven by leading researchers and clinicians at each of the participating institutions, which, as Manhattan neighbors, form one of the world's great medical complexes. The center will have the ability to investigate both the virus' basic scientific and clinical manifestations and the means to develop potential treatments and offer them to HCV patients.

Cornell and chief of the Division of Gastroenterology and Hepatology and attending physician at the Weill Cornell Medical Center of NewYork-Presbyterian Hospital.

The center will be funded by a grant from the Greenberg Medical Research Foundation, chaired by Maurice R. Greenberg, chairman and CEO of American International Group, Inc. "The current understanding of the hepatitis C virus is poor," says Greenberg. "By bringing together world-renowned scientists, this unique New York City center can improve the lives of millions of infected people through basic research and clinical care." Greenberg is former chairman of the board of New York Hospital, chairman emeritus of the NewYork-Presbyterian Hospital and an RU trustee.

"The incidence of hepatitis C-associated disease is rising at an alarming rate that is emerging as a serious threat to public health," says Rockefeller University President Arnold J. Levine. "We think a large-scale effort must be implemented now to avoid grave consequences in the 21st century. The Greenberg Foundation's visionary leadership to fight hepatitis C captures the spirit of philanthropy, which increasingly focuses on the intellectual treasures of New York City—its academic centers."

Herbert Pardes, president and CEO of NewYork-Presbyterian Hospital, and Antonio M. Gotto Jr., dean of Weill Cornell Medical College, echo Levine's enthusiasm for the joint venture. Observes Pardes: "This is a superb example of the real progress that can be made from a true collaboration among three world-class institutions with the human and material resources to combat the disease at the level of both basic science and clinical treatment. We should do more of this."

Gotto adds, "Dr. Rice will be able to rely on all three institutions' leading researchers and clinicians; count on our outstanding laboratories and patient facilities; and draw on a broad patient base made possible by our joint venture. Our combined basic and clinical research resources will also allow us to work with leading pharmaceutical and biotechnology companies to develop and test effective therapies for HCV."

Levine also foresees the center collaborating with private companies to develop and test drugs that will disrupt HCV's life cycle. "Given the density of population in the New York area, a significant number of hepatitis C carriers live in proximity to

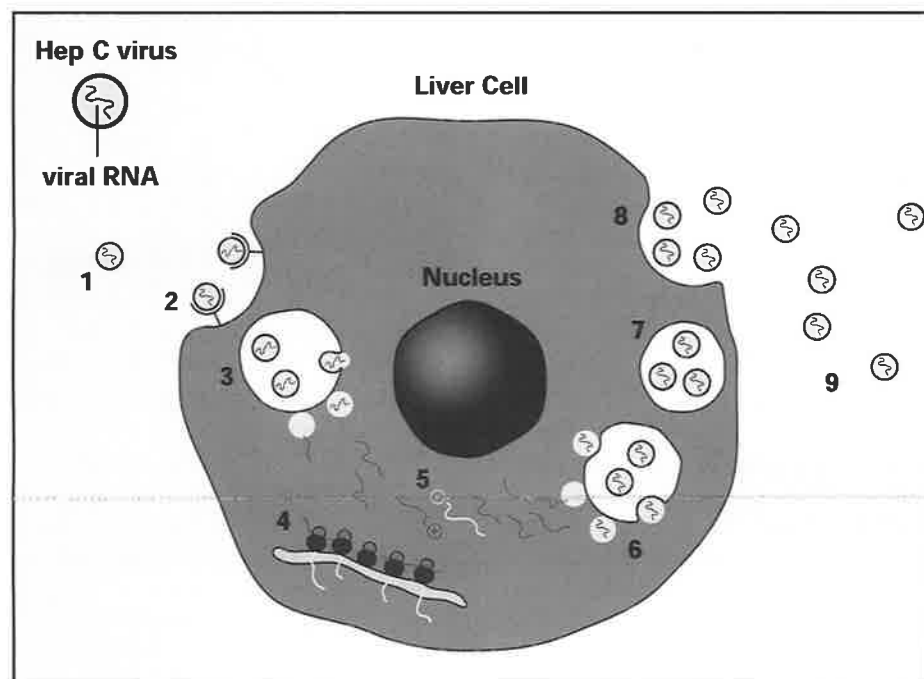


Ira Jacobson (left) and Charles M. Rice (right) will lead the new HCV center, which is the first in the northeast region devoted specifically to the disease. The center is funded by the Greenberg Medical Research Foundation. Photo at left courtesy of Weill Cornell Medical Center. Photo at right by Amanda Gersh.



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Although much about the life cycle of the hepatitis C virus is poorly understood, scientists have pieced together a possible sequence of biological events explaining how the virus enters a liver cell, makes copies of itself and then exits to infect other cells. Researchers theorize that hepatitis C virions (1) bind with a receptor on the surface of a cell membrane, which surrounds and pinches off around the virions (2), floating amid the cell cytoplasm. Then the virions somehow fuse with the vesicle surface (3) to deliver the RNAs and their proteins into the cytoplasm.

Viral RNAs are translated by ribosomes into long protein sequences, which are then broken into smaller components (4), and then copied into complementary (-) RNAs that serve as templates for making many progeny RNAs (5). The numerous copies of RNA made from this process then join with the protein components manufactured in step 4 and enter an empty vesicle, using part of the vesicle's membrane to form complete virions (6). Once inside the vesicle, the virions are secreted from the liver cell by the cell's secretory pathway (7-8), releasing the new virions from the cell (9) to infect a large number of new cells.

Diagram by Ravi Rajakumar.

stand how it causes liver injury and progressive liver disease or other complications.

To further investigate HVC the Rockefeller University has partnered with its

Rice will be joined by Ira Jacobson, an authority on liver disease, who will serve as the center's first medical director. Jacobson is professor of clinical medicine at Weill

one or more of our three institutions," he says. "This will greatly aid our researchers in recruiting people for various studies, and many patients will welcome the chance to participate in these trials."

Diverse patient pool

Levine emphasizes that access to a large and diverse pool of patients will enable scientists to study the natural history of HCV in a significant population. "Development of a patient registry or epidemiology program," he notes, "will help Dr. Rice and researchers learn the mechanism of chronic infection and whether there is any underlying genetic component that helps some people resist the disease. The diversity of patients will also permit a detailed study of HCV carriers with a variety of symptoms, such as Sjogren's syndrome, glomerulonephritis and other autoimmune problems."

Jacobson adds, "We are very excited by the arrival of Dr. Rice. His presence, along with that of his co-workers, will provide the scientific foundation for a highly integrated, collaborative effort to address the major issues in this field, including HCV's natural history, pathogenesis and therapy. The clinical facility will have expanded capacity for patient care and clinical trials, data storage and serum and tissue banking."

The new center also involves several noted physician-scientists at the Columbia Presbyterian Medical Center of NewYork-Presbyterian Hospital and the Columbia University College of Physicians and Surgeons, including Jean Emond and Robert Brown, surgical and medical directors, respectively, of the Center for Liver Transplantation at NewYork-Presbyterian.

The Cohn Forum presents: "What do Scientists Mean by Theory?"

Mitchell Jay Feigenbaum, Toyota Professor and director of the Center for Studies in Physics and Biology at The Rockefeller University, will present the next Zanvil A. Cohn Forum on Health Affairs on Mon., May 15. Feigenbaum's work has been instrumental in establishing the field of chaotic dynamics, or chaos. Until the initiation of systematic studies of chaos, physicists had been unable to predict or describe events in nature that exhibit erratic or turbulent behavior. Weather, smoke, clouds, water dripping from a faucet and an airplane in flight are examples of chaos.

Through mathematical formulations, Feigenbaum discerned distinct patterns in the transition from orderly to disorderly



Mitchell Jay Feigenbaum, Toyota Professor and director of the Center for Studies in Physics and Biology at Rockefeller, will talk at the Zanvil A. Cohn Forum on Health Affairs on Mon., May 15. Photo by Robert Reichert.

sequences of numbers. With the aid of a computer, he found that different equations produced the same pattern. He was able to demonstrate that these patterns possessed the mathematical property of universality—that is, the patterns of transitional disorder were identical

regardless of what was being disordered.

With the help of powerful computers, Feigenbaum seeks to find equations that will predict details of erratic phenomenon as accurately as classical theorems predict, for example, the escape velocity of a launched missile.

Feigenbaum received his Ph.D. in theoretical physics from the Massachusetts Institute of Technology in 1970. Before joining Rockefeller in 1987 as Toyota Professor and head of the Laboratory of Mathematical Physics, he held research posts at Virginia Polytechnic Institute, the Los Alamos National Laboratory and Cornell University, where he was a professor in the Department of Physics and the Laboratory of Atomic and Solid Physics.

He was also a visiting member of the Institute for Advanced Studies at Princeton in 1978 and in 1984. Among the many honors he has received are the Ernest O. Lawrence Award, a MacArthur Foundation Award and the 1986 Wolf Foundation Prize in Physics, Israel's top scientific honor. He was elected a member of the National Academy of Sciences in 1988.

The Zanvil A. Cohn Forum on Health Affairs was established in honor of the late Zanvil Cohn, RU professor and vice president for medical affairs. The lecture begins at 5:30 p.m. in Abby Aldrich Rockefeller Dining Room and is preceded by a wine and cheese reception in Abby Aldrich Rockefeller Lounge. All are welcome, and admissions is free.

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calendar of events

<http://www.rockefeller.edu/rucal>

THE ROCKEFELLER UNIVERSITY—Please post

FRIDAY, MAY 5

10:30 a.m. **Viable Leprosy Bacilli as a Research Reagent and Studies of Host Response to Live *M. leprae* in Gene Knock-Out Mice.** Jim Krahenbuhl, Chief Hansen's Disease Center, Louisiana State U. New York TB Club Seminar. **110B Nurses Residence.** Contact Claudia Manca, 327-8103.

12:00 p.m. **From Mad Cows to "Psi"-chotic Yeast: Expansion of the Prion Hypothesis.** Susan Lindquist, Investigator, HHMI; Professor, U. of Chicago, Molecular Biology Seminar. **116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St.** Refreshments at 11:45 a.m.

MONDAY, MAY 8

11:00 a.m. **The Cold Zone: A Curious Convergence of Tick-borne Diseases.** David H. Persing, Vice President, Diagnostic Research, Corixa Corporation. LFKRI Research Seminar. **Lower Level Conference Room, New York Blood Center, 310 East 67th St.**

12:30 p.m. **Altered TCR Signaling: Potential Role in Susceptibility to Autoimmune Disease.** Terry Delovitch, Director of Autoimmunity/Diabetes Group, John P. Roberts Research Institute, Ontario, Immunology Lecture. **Second Floor Conference Room, HSS, 535 East 70th St.**

4:00 p.m. **Surprising Roles for the Matrix Metalloproteinase Matrilysin in Normal and Neoplastic Processes.** Lynn M. Matrisian, Professor and Chair, Dept. of Cancer Biology, Vanderbilt U. School of Medicine. Cell Biology and Genetics Seminar. **Weill Auditorium, WMCCU, 1300 York Ave.**

5:00 p.m. **The Role of RNA Polymerase II C-terminal Domain in Transcription and RNA Processing.** David L. Bentley, Professor, Dept. of Biochemistry and Molecular Genetics, U. of Colo. Medical School. Pathology Seminar. **117 Whitney, WMCCU, 1300 York Ave.** Refreshments will be served. Contact J. Jillian Zhang, 746-4614.

TUESDAY, MAY 9

11:00 a.m. **Tertiary Structure of a Functional Ribozyme Active-site Revealed through Chemogenetic and Computational Methodologies.** Anna-Marie Pyle, P&S Associate Professor of Biochemistry and Molecular Biophysics, Investigator, HHMI. Columbia U. Pels Family Center for Biochemistry and Structural Biology Seminar. **301 Weiss.** Contact Bobbie Larraga, 327-7240. Open to RU/WMCCU/NYPH/MSKCC community and guests.

4:00 p.m. **Cardioprotective Effects of Opioids.** Garrett J. Gross, Professor, Dept. of Pharmacology and Toxicology, Medical College of Wisc. Pharmacology Seminar. **Weill Auditorium, WMCCU, 1300 York Ave.** Coffee at 3:45 p.m. Contact Virginia Ramos, 212-746-6250. Open to RU/WMCCU/NYPH/MSKCC community and guests.

4:00 p.m. **Correlated Spontaneous Activity in Mouse Visual Cortex: A Window into the Cortical Circuitry?** Rafael Yuste, Assistant Professor, Columbia U. College of Physicians and Surgeons. Center for Studies in Physics and Biology Seminar. **B Level Conference Room, Smith Hall Annex.** Tea at 3:30 p.m. Contact Martin Zapotocky, 327-8835.

WEDNESDAY, MAY 10

12:00 p.m. **Clinical Cancer Genetics: How Good are the Data?** Judy Ellen Garber, Assistant Professor of Medicine, Dana Farber Cancer Institute, Harvard Medical School. Seminars in Clinical Research. **110B Nurses Residence.**

4:00 p.m. **Drug Discovery: Novel Molecular Design Technology.** Eugene Cordes, Professor, U. of Mich. Seminar. **301 Weiss.** Contact Jill Benz, 327-8092. Open to RU/WMCCU/NYPH/MSKCC community and guests.

THURSDAY, MAY 11

12:00 p.m. **Non-ER- α and Non-ER- β Responses to Estrogens in ER- α KO Mice.** Dennis B. Lubahn, Associate Professor, Dept. of Biochemistry, U. of Missouri Columbia. Endocrinology and Reproductive Biology Seminar. **301 Weiss.**

2:30 p.m. **New York Alzheimer Disease Research Symposium.** Mark Mattson, National Institute on Aging, Tom Wisniewski, NYU. Michael K. Ahljanian, Pfizer Central Research. **305 Weiss.** Refreshments at 5:30 p.m. in the 17th Floor of Weiss Floor. Contact Huaxi Xu, 327-7567.

4:00 p.m. **Factors Affecting Human Hematopoietic Stem Cell Engraftment Following Ex-Vivo Manipulation.** Jan A. Nolte, Assistant Professor of Pediatrics, Children's Hospital of Los Angeles. LFKRI Research Seminar. **Lower Level Conference Room, New York Blood Center, 310 East 67th St.** Tea at 3:45 p.m.

4:00 p.m. **Inhibitory Effects of Tea on Carcinogenesis.** Allan H. Conney, Director, Laboratory for Cancer Research, Dept. of Chemical Biology, Rutgers, The State University of New Jersey. CNRU Special Nutrition Lecture. **D-417 WMCCU, 1300 York Ave.**

FRIDAY, MAY 12

12:00 p.m. **Role of Rab GTPases in Endosome Biogenesis and Function.** Marino Zerial, Max Planck Institute of Molecular Cell Biology and Genetics, Heidelberg, Germany. Cellular Biochemistry and Biophysics Seminar. **116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St.**

2:00 p.m. **Communication Strategies for Nurses: From the Bedside to Beyond.** Patricia O'Brien, Senior Advisor for Regulatory and Professional Affairs, Greater N.Y. Hospital Association. Nurses' Day Celebration. **110B Nurses Residence.** Refreshments at 1:30 p.m. Contact Jean Dooner, 327-8405. Open to RU/WMCCU/NYPH/MSKCC community and guests.

2:00 p.m. **New Insight into the Molecular Mechanism of Envelope Protein-Mediated Virus-Cell Fusion: Similarities and Differences in HIV-1 Paramyxoviruses.** Yechiel Shai, Dept. of Biological Chemistry, Weizmann Institute of Science. LFKRI Research Seminar. **Lower Level Conference Room, New York Blood Center, 310 East 67th St.**

7:00 p.m. **Psoriasis Support Group.** Patricia Gilleaudeau, Research Nurse, RU, Psoriasis Support Group Meeting. **110B Nurses Residence.** Contact Patricia Gilleaudeau, 327-8333.

MONDAY, MAY 15

12:00 p.m. **The HIV gp120 Envelope Glycoprotein: Structure, Function and Vaccine Design.** Peter Kwong, Columbia U. CFAR Seminar. **Sixth Floor Conference Room, ADARC, 455 First Ave.**

5:00 p.m. **Pro-apoptotic Oncogenes as a Trojan Horse.** Yuri Lazebnik, Associate Professor, Cold Spring Harbor Laboratory. Pathology Seminar. **C-405 WMCCU, 1300 York Ave.** Refreshments will be served. Contact Selina Chen-Kiang, 746-6440.

5:30 p.m. **What Do Scientists Mean by Theory?** Mitchell Feigenbaum, Professor, RU, Zanvil A. Cohn Forum on Health Affairs. **Abby Dining Room.** Sherry/wine at 5:00 p.m. in the Abby Lounge.

TUESDAY, MAY 16

4:00 p.m. **Mechanism of Basolateral Sorting in Polarized Epithelial Cells.** Yunbo Chen, WMCCU. **P53 Represses the MDR1 Promoter by Direct DNA Binding.** Robert Johnson, WMCCU. Progress in Neuroscience Seminar. **A-250 WMCCU, 1300 York Ave.** Tea at 3:45 p.m.

4:00 p.m. **Structure of the RNA-Protein Core of the Signal Recognition Particle: A Surprising Role for RNA in Protein Targeting.** Jennifer Doudna, Yale U. Tri-institutional Structural Biology Seminar. **Weill Auditorium, WMCCU, 1300 York Ave.** Coffee at 3:45 p.m. Open to RU/WMCCU/NYPH/MSKCC community and guests.

WEDNESDAY, MAY 17

12:00 p.m. **Synaptic Autoantigens of Stiff-man Syndrome.** Michele Solimena, Associate Professor of Medicine, Yale U. School of Medicine. Seminars in Clinical Research. **110B Nurses Residence.**

4:30 p.m. **Radiotherapy for Benign Brain Tumors: A Re-evaluation.** Jay Loeffler, Professor of Radiation Oncology, Harvard Medical School, Director, Northeast Proton Therapy Center, Mass. General Hospital. Neurooncology Neuroscience Conference. **Hoffmann Auditorium, MSKCC, 1275 York Ave.** Snacks and refreshments at 4:15 p.m. Contact Vivian Tabar, 639-8556.

7:15 p.m. **New York Structural Biology Group Meeting.** Please note: Speakers may not necessarily appear in this order: Michael Rosen, SKI; Stevan Hubbard, NYU; Tamar Schlick, NYU. **Caspary Auditorium.** Refreshments will be served. Sponsored by the New York Academy of Sciences Session chaired by Barry Honig, Columbia U. Open to RU/WMCCU/NYPH/MSKCC community and guests.

THURSDAY, MAY 18

11:00 a.m. **The α -CP Subfamily of KH Domain Proteins; Structural Characteristics and Potential Roles in mRNA Function.** Stephen A. Liebhaber, Professor of Genetics and Medicine, HHMI-U. of Penna. School of Medicine. Pels Family Center for Biochemistry and Structural Biology Seminar. **301 Weiss.** Contact Bobbie Larraga, 327-7240. Open to RU/WMCCU/NYPH/MSKCC community and guests.

3:00 p.m. **Structural Genomics of the Hepatitis C Virus.** Patricia C. Weber, Senior Director of Structural Chemistry, Schering-Plough Research Institute. LFKRI Research Seminar. **Lower Level Conference Room, New York Blood Center, 310 East 67th St.** Tea at 2:45 p.m.

8:00 p.m. **The Mouse as a Gene Discovery Tool in the Modern Genome Era.** Neal Copeland and Nancy Jenkins, Frederick Cancer Research and Development Center, Frederick, Md. Harvey Society Lecture. **Caspary Auditorium.** All are welcome.

THE ROCKEFELLER UNIVERSITY Friday Lectures & Thesis Presentations

These events are held in Caspary Auditorium at 3:45 p.m. Tea is served in Abby Aldrich Rockefeller Lounge at 3:15 p.m. All are welcome.

FRIDAY, MAY 5

Molecular Analysis of Aging. Leonard Guarente, Professor of Biology, MIT.

TUESDAY, MAY 9

Thesis Presentation: Neurobehavioral Studies of the Song System in Adult Male Zebra Finches (*Taeniopygia guttata*). Anthony Lombardino, Graduate Fellow, RU.

FRIDAY, MAY 12

Exploring the Genetic Origins of Mental Illness. Maria Karayiorgou, Assistant Professor, RU

FRIDAY, MAY 19

William H. Stein Memorial Lecture: Structural Biology in Four Dimensions: The Catalytic Pathways of Cytochrome P450 and Alkaline Phosphatase at Atomic Resolution. Greg Petsko, Director, Rosenstiel Center, Brandeis U.

The Arts and Other Events

FRIDAY, MAY 5

12:00 p.m. **Tri-Institutional Noon Recitals.** Ian Parker, piano. Performing Beethoven's *Sonata No. 31*; Louie's *Memories in an Ancient Garden*; Chopin's *Nocturne in B*; Brahms' *Sonata No. 3*. **Caspary Auditorium.** Contact John Gerlach, 327-7776. Open to RU/WMCCU/NYPH/MSKCC community and guests.

WEDNESDAY, MAY 10

8:00 p.m. **Peggy Rockefeller Concerts.** Guarneri String Quartet. Performing Brahms' *String Quartet in C Minor, Op. 51, No. 1*; Bartók's *String Quartet No. 2, Op. 17*, and Ravel's *String Quartet in F Major*. **Caspary Auditorium.** Contact Cathy Rogers, 327-8437.

THURSDAY, MAY 11

8:00 p.m. **Rockefeller University Film Series.** *Powaqqatsi* (1988). Directed by Godfrey Reggio. **Caspary Auditorium.** Open to RU/WMCCU/NYPH/MSKCC community and guests.

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